

FIRE FACT NO. 043 CHECKLIST(s) : 99

TITLE : STORAGE OF FLAMMABLE & COMBUSTIBLE LIQUIDS IN SCHOOL BUILDINGS

CHECKLIST ITEM(s) : 99 – 62

REFERENCE(s) : K.S.A. 31-133 & NFPA 30

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Requirements for the safe storage and use of flammable and combustible liquids commonly available depend primarily on their fire characteristics, particularly the flash point of the material in question. These liquids are placed in one of three categories, Class I, Class II, or Class III. The volatility of liquids is increased by heating. When Class II or III liquids are exposed to storage conditions, use conditions, or process operations where they are naturally or artificially heated to or above their flash points, additional requirements may be necessary. These characteristics dictate extreme care be taken in storing these materials in such a way as to isolate them from possible exposure to a fire situation. Flammable and Combustible materials are generally stable when used as directed and may not directly cause a fire while stored or used properly but they will adversely affect the rapid growth of a fire if exposed to one. Results of this condition have overpowered fire suppression systems and directly led to the total destruction of buildings.

Flammable liquids are defined as follows, A liquid having a flash point below 100 degrees F and having a vapor pressure not exceeding 40 psia. This shall be known as a Class I liquid. Class I liquids are further broken down into three categories as follows;

- Class IA --those having flash points below 73 degrees F and having a boiling point below 100 degrees F.
- Class IB --those having flash points below 73 degrees F and having a boiling point at or above 100 degrees F
- Class IC --those having flash points at or above 73 degrees F and below 100 degrees F.

Combustible liquids are defined as follows, A liquid having a flash point at or above 100 degrees F. These liquids are subdivided as follows;

- Class II --those having flashpoints at or above 100 degrees F and below 140 degrees F
- Class IIIA --those having flash points at or above 140 degrees F and below 200 degrees F
- Class IIIB --those having flash points at or above 200 degrees F



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Examples of Class I, II, and III liquids are as follows;

Class I Gasoline, Thinners, Some types of mimeograph solutions, floor refinisher

Class II Diesel Fuel, Some types of solvents

Class III Lubricants, Greases

If you have any question regarding what class a particular product is, consult the Material Safety Data Sheet which is supplied by the manufacturer and sent with the product.

All flammable and combustible liquids must be kept in the proper type and size container either while in use or in storage. Glass, metal, and plastic or polyethylene containers must meet certain design criteria in order to hold these types of liquids. This office can provide what standards and specifications apply to these containers if questions arise. The maximum allowable size of containers for various liquids is also specified per the following guidelines;

Container Type	Flammable Liquids			Combustible Liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass	1 pt.	1 qt.	1 gal.	1 gal.	5 gal.
Metal--(other than Approved DOT drums) or plastic	1 gal.	5 gal.	5 gal.	5 gal.	5 gal.
Safety Cans	2 gal.	5 gal.	5 gal.	5 gal.	5 gal.
Metal Drum (DOT Spec)	60 gal.	60 gal.	60 gal.	60 gal.	60 gal.
Polyethylene (DOT Spec)	1 gal.	5 gal.	5 gal.	60 gal.	60 gal.

These containers must be stored in approved storage cabinets that are specifically designed to house containers of flammable and combustible liquids. These cabinets can be purchased or built in house. In either case, they must be manufactured to specific guidelines. These guidelines are found in NFPA 30, 4-3.2, 4-3.2.1, 4-3.2.2 and 4-3.2.3. Cabinets shall be marked in conspicuous lettering "FLAMMABLE --- KEEP FIRE AWAY". Not more than 120 gal. Of Class I, Class II, and Class III liquids may be stored in a storage cabinet. Of this total, not more than 60 gal. may be of Class I and Class II liquids, and not more than three such cabinets may be located in a single area. There is one exception to this and that is that Class I liquids can not be stored in basements under any circumstances. Storage shall be limited to that required for operation of office equipment, maintenance, demonstration, and laboratory work.

Care must be taken when selecting a location for these storage cabinets. These cabinets must not be placed in rooms that contain any type of heating equipment, such as furnace or boiler rooms, electrical rooms, or any other type of hazardous space or room. They must also be placed as not to obstruct any exit path or corridor.

Rags that are used in conjunction with flammable and combustible liquids for whatever reason and become contaminated with the particular product should be properly discarded at the end of the work shift. They should not be allowed to accumulate in any work area for any reason.